

**REMARKS****I. Status of the Claims**

Claims 1-19 are pending in the application. Claims 15 and 16 are withdrawn from consideration. Claims 1-14 and 17-19 stand rejected. No claims are currently being amended or cancelled. Applicant respectfully requests reconsideration and allowance of claims 1-14 and 17-19 in view of the remarks presented here.

**II. Claims 1, 3-7, 10-14, and 18 are Not Anticipated by Gillery**

Claims 1, 3-7, 10-14, and 18 stand rejected under § 102(b) over Gillery (US 4,948,677). Applicant respectfully traverses this rejection in view of the following remarks and the declaration submitted herewith.

All pending independent claims (i.e., claims 1 and 17-19) define in part a thermostable glazing comprising a substantially transparent substrate with a substantially transparent, thermostable solar coating on a surface of the substrate.

Gillery fails to disclose each and every element of each independent pending claim, and accordingly, does not anticipate the present application. For instance, Gillery does not disclose a *thermostable* solar coating, as defined by all pending claims and described, for example, at page 7 of the application (quoted in Applicant's previous Amendment – Paper No. 14). Gillery does not disclose a thermostable solar coating because none of the Gillery coatings can retain their characteristic mechanical properties, or their optical values such as transmittance and reflectance when heated to temperatures as high as 590 °C to 650 °C. In fact, Gillery admits at column 6, lines 7-9 that the process does not use high temperatures, "Since the process does not require very high temperatures, substrates other than glass, such as various plastics, may be coated." If

heated to these high temperatures, the silver metallic layer in Gillery would be oxidized and the characteristic properties of the coating would be changed.

In support of the position that none of the coatings disclosed in Gillery are thermostable, Applicant submitted with Paper No. 14 a declaration pursuant to 37 C.F.R. § 1.132. The declaration states that Gillery does not teach a coating that is thermostable at temperatures above 400 °C. The Examiner asserts at pages 4-5 of the present Office Action that the declaration is not within the scope of the claims, arguing that the specification teaches a tempering or bending temperature of 590-650 °C. Applicant respectfully traverses this assertion because the declarant's statement that the Gillery coating is not thermostable above 400°C encompasses temperatures in the range of 590-650 °C. Surely a coating that is not thermostable at above 400°C is not thermostable at 590-650 °C. Nevertheless, if the Examiner maintains this position, then in an effort to advance the prosecution of the present application, Applicant will submit another declaration pursuant to 37 C.F.R. § 1.132 stating that the Gillery coating is not thermostable at temperatures in the range of 590-650 °C. .

Because Gillery does not disclose a thermostable solar coating, it does not anticipate present claim 1. Claims 3-7 and 10-14 are patentable over Gillery by virtue of their dependency from claim 1. Similarly, claims 17-19, which also define a thermostable coating, are patentable for the reasons presented above. Thus, each of the subject claims is patentable over Gillery.

Further, the subject claims are patentable over Gillery because Gillery fails to disclose, either explicitly or inherently, a thermostable solar coating *consisting essentially of* sputter deposited copper oxide, as defined by all pending independent claims. Indeed, the Gillery coating is composed of many layers other than copper. See, for example, column 4, lines 30-44,

where the Gillery coating is seen to be composed of a nickel layer, a zinc/tin alloy oxide layer, copper layer, silver layer, etc. Thus, each of the subject independent claims is patentable over Gillery for this independently sufficient reason, and all dependent claims are patentable at least by virtue of their dependency. Accordingly, Applicant respectfully requests withdrawal of the present rejection and allowance of all claims at this time.

**III. Claims 1-3, 5, 10-14, and 18 are Not Anticipated by King**

Claims 1-3, 5, 10-14, and 18 stand rejected under § 102(b) over King (US 3,720,541). Applicant traverses this rejection in view of the following discussion and the declaration submitted herewith.

Independent claims 1 and 18 are patentable over King at least because King fails to disclose, either explicitly or inherently, a *thermostable* solar coating. The Examiner asserts at page 2 of the Office Action that the King copper oxide layer is considered to be thermostable, as well as the rest of the coating in conjunction with the copper oxide layer, because King teaches heat treating the coating to 240 °C. Applicant respectfully disagrees.

The Examiner's assertion misses the mark because, as discussed in detail above and in Applicant's previous Amendment (Paper No. 14), the subject claims define solar coatings that are thermostable. That is, the present solar coatings are resistant against degradation, most notably against degradation of their solar properties, i.e., their ability to block or transmit light of different wavelengths, and retain their characteristic mechanical properties (e.g., body integrity, surface continuity, etc.) when exposed to substrate bending or tempering temperatures in the range of 590-650 °C. Accordingly, the coatings of Applicant's subject claims can be heated as high as their tempering and bending temperatures without the color and optical properties have

been altered exceeding the given tolerances. Nowhere does King disclose, either explicitly or inherently a solar coating that is thermostable. King does not disclose a solar coating that can be heated to bending or tempering temperatures of its glass substrate. The temperature range taught by Applicant is *at least twice* that disclosed in King.

Rather, King expertly teaches heating its coated substrate to “a maximum temperature of 240 °C” to stabilize the electrical resistance of the gold film. See column 2, lines 23-29 and column 3, lines 26-30.

Applicant further notes that the copper oxide layer in King is an inside protective film. It is applied on the topside of a second bismuth oxide layer situated on the topside of a gold film to protect the bismuth oxide layer during a subsequent sputtering of a protecting silica layer. The copper oxide layer of King is comparable to previously known  $\text{NiCrO}_x$  layers, which protect a silver layer from oxygen gas during reactive tin oxide coating processes in older low-e coatings. Applicant’s thermostable solar coatings, on the other hand, are significantly different from King insofar as they consist essentially of copper oxide solar to achieve a solar control glazing.

If the Examiner nevertheless maintains the current rejection over King, Applicant will submit a declaration pursuant to 37 C.F.R. § 1.132 that the King coating is not thermostable at temperatures in the range of 590-650 °C.

Thus, independent claims 1 and 18, as well as all pending dependent claims, are patentable over King and an indication to that effect is respectfully requested at this time.

#### **IV. Claims 1-14 and 17-19 Are Patentable over Demiryont**

Claims 1-14 and 17-19 stand rejected under § 102(e) over Demiryont (US 6,416,194). Applicant respectfully traverses this rejection because a proper reference under 35 U.S.C.

§ 102(e) must be “by another.” The subject claims are patentable over the Demiryont ‘194 patent because the Demiryont ‘194 patent is not “by another” as required by 35 U.S.C. § 102(e). That is, the Demiryont ‘194 patent and the present application are commonly assigned and have the same inventive entity. Accordingly, because the Demiryont ‘194 patent is not “by another”, all pending claims are patentable over the Demiryont ‘194 patent.

**V. Claims 2, 8, 9, and 17 are Not Obvious over Gillery**

Claims 2, 8, 9, and 17 stand rejected under § 103(a) over Gillery (US 4,948,677). Applicant respectfully traverses this rejection.

Claims 2, 8, 9, and 17 are patentable over Gillery at least because Gillery fails to teach or suggest a thermostable solar coating, as discussed above.

Further, claims 2, 8, 9, and 17 are patentable over Gillery because a person of ordinary skill in the art would not have a reasonable expectation of success of heating the Gillery coating to the high temperatures described by Applicant with the expectation of the coating retaining its mechanical and optical properties. In that regard, a person of ordinary skill in the art would not believe that the Gillery coating is thermostable and accordingly would not be motivated to heat the Gillery coating to the high temperatures taught by Applicant in view of its teachings. In fact, Gillery teaches away from heating the coating to high temperatures at column 6, lines 7-9 (quoted above) when the substrate is plastic. Thus, claims 2, 8, 9, and 17 are patentable over Gillery for this additional, independently sufficient reason.

**VI. Claims 6-9 and 17 are Not Obvious over King**

Claims 6-9 and 17 stand rejected under § 103(a) over King (US 3,720,541). Applicant respectfully traverses this rejection in view of the following discussion.

Claims 6-9 and 17 are patentable over King at least because King does not teach or suggest a thermostable solar coating. As discussed in detail above, King teaches heating a coated substrate to a maximum of 240 °C to stabilize the electrical resistance of the gold film. Thus, claims 6-9 and 17 are not *prima facie* obvious over Gillery.

Further, nowhere does King teach or suggest the desirability or of heating the coating to bending or tempering temperatures. In that regard, nowhere does King teach or suggest that the coating disclosed would retain their mechanical and optical properties if it were to be heated to such high temperatures. Thus, claims 6-9 and 17 are patentable over King for this additional, independently sufficient reason.

Regarding claim 17, King does not teach or suggest the defined feature of a bent substrate. Indeed, the Examiner makes this admission at page 5 of the present Office Action. The Examiner asserts, however, that it would have been obvious to one of ordinary skill in the art to apply the coating of King to a bent glass that is suitable for use as a vehicle windscreen. Applicant respectfully traverses this assertion. King does not teach a bent substrate or a need for bending. A person of ordinary skill in the art would not be motivated to apply the King coating to a bent substrate because there is no suggestion or identified need for bending King's substrate. Additionally, a person of ordinary skill in the art would not be motivated to apply the King coating to a planar substrate and then subsequently bend the substrate by, e.g., heating at high tempering or bending temperatures, in view of the express King teaching of a 240° maximum temperature. As such, the motivation for such a modification of King is lacking. Thus, claim 17 is patentable over King for this additional, independently sufficient reason.

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**VII. Conclusion**

Having addressed all outstanding issues, Applicant respectfully requests withdrawal of all rejections, allowance of the claims and issuance of this application.

Respectfully submitted,

Date

19 Sep 2003



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